

Technical Specification

Status Detail on R/SW/T Buildings

It is estimated that approximately 550 pounds of mercury still remains in SW Building and less than 20 pounds in T. It is anticipated that mercury will need to be removed from the equipment and placed in containers before transferred for storage/disposal. The contaminated mercury is a mixed waste. Currently, there is no identified path forward for treating the stored mercury. However, commercial alternatives are believed to exist.

Many areas in T, SW and R Buildings contain asbestos in floor tiles, transite walls, roofing, doors, piping thermal insulation etc. Only small fraction of asbestos has been removed during the safe shutdown activities. The majority of these buildings still need to undergo asbestos abatement. It is estimated that approximately 4000 linear feet of thermal insulation and 20,000 square feet of roofing, tiles, etc. are still in SW and R Building. No estimation currently exists for T Building.

Removal of thermal diffusion columns requires special attention, not only due to their elevated level of tritium contamination, but also physical configurations. There are 15 in T-59, 1 in T-274, 4 in SW-8 and 1 in R-110. There are several filter banks located in T, SW and R Buildings. Filter banks are expected to be needed while deactivation is taking place to minimize the off-site emission as well as to maintain the integrity of the nuclear facilities. A total of 12 filter banks are in SW and R Buildings. Only one exists in T Building (T-27, its dimensions are 24"x24"x1").

Originally the buildings contained approximately 1,200 feet of glovebox lines. About 800 feet are estimated to remain at this time. The current method of deactivation of highly contaminated gloveboxes (and their ancillary equipment and piping) is a tedious and time-consuming process. Ancillary equipment and piping and trash are removed from the gloveboxes first. The gloveboxes are then purged through TERF and/or to ambient to reduce the contamination level. If contamination levels are still high after purging, bubble suits are utilized. Consideration of size reduction of the gloveboxes to comply with DOT requirements may be needed. Gloveboxes with low levels of contamination have been left in place and was planned for removal during the future demolition phase.

A total of 43,587 square feet of floor space within T, SW and R are "hot" areas (contamination area), 12,938 square feet in T, the remaining in SW/R. The rest of buildings are considered as "cold" areas. (T Building has about 173,000 square feet of floor space, while SW/R about 100,000 square feet.) Full characterization of SW and R Buildings to determine level of contamination throughout the buildings has not yet been done. It is suspected that some areas within the buildings may contain contamination sources high enough to exceed the NESHAP requirements during building demolition, such as crawl spaces, alpha contamination in R Building, underneath the existing walls, and underneath the floors in certain rooms of SW Building. Decontamination of certain areas may be required prior to building demolition. In the past, T Building has handled operations with contamination of various radionuclides. There is also subsurface (below-grade) contamination in the first floor of T Building due to the legacy of the historical polonium operations. The soil cleanup criteria used throughout the site may not be applicable in this situation. No precedence exists with the regulators for this situation. The TERF continues generating tritiated water during its operations. The quantity of tritiated water generated varies from month to month. In general, the summer time has higher (~120 L/month) than in the winter (~60 L/month) due to its high moisture content. The average generation rate is about 25,000 curies of tritium per month. The tritiated water has been solidified in the waste solidification facility in T-61 and shipped to the NTS for disposal. TERF is expected to be operational throughout the entire deactivation process. A total of 12 rooms in T, SW and R Buildings are designated as limited areas (one in T, one in R and the rest in SW. There are only four remaining classified parts. They are all stored in R-108. It is estimated that all of them will be processed and disposed of in R-108 except for one, which will need to be shipped to LANL. The project only has limited amount of nuclear materials remained including 21 deuterium cylinders, 1 kg of D-38 (depleted uranium), 5kg of natural uranium, 387 micrograms of Cf-254 and 0.3g of Pu-238.

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